

CLAIMS

- 1 1. A computer cluster comprising:
 - 2 storage media;
 - 3 a first computer having a first instance of an application
 - 4 program installed, said application program having instructions,
 - 5 said first computer including,
 - 6 volatile memory;
 - 7 processing means
 - 8 for executing instructions of said first instance of
 - 9 said application program so as to modify data stored in
 - 10 said memory,
 - 11 for creating a snapshot of said data while said first
 - 12 instance of said application program is running, said
 - 13 snapshot being stored in said volatile memory, and
 - 14 for transferring said snapshot from said volatile
 - 15 memory to said storage media while said first instance
 - 16 of said first instance of said application program is
 - 17 running, and
 - 18 a second computer having a second instance of said application
 - 19 program installed, said second computer including means for
 - 20 accessing said storage media so that said second instance of said
 - 21 application can access said snapshot as stored on said storage
 - 22 media.

- 1 2. A computer cluster as recited in Claim 1 wherein said processing
2 means includes
3 a data processor
4 for executing instructions of said first instance of said
5 application program so as to modify data stored in said
6 memory, and
7 for creating said snapshot of said data while said first
8 instance of said application program is running, said
9 snapshot being stored in said volatile memory, and
10 a transfer processor for transferring said snapshot from said
11 volatile memory to said storage media while said first instance of
12 said first instance of said application program is running.
- 1 3. A computer cluster as recited in Claim 1 further comprising a
2 first cluster daemon running on said first computer for causing said
3 snapshot to be created.
- 1 4. A computer cluster as recited in Claim 1 further a second cluster
2 daemon running on said second computer, said second cluster
3 daemon providing:
4 for detecting a failure that prevents said first instance of
5 said application program from running on said first
6 computer, said failure detector, and
7 for causing, in response to said detecting a failure, said
8 second computer to process said snapshot in accordance with
9 instructions of said second instance of said application
10 program.

1 5. A computer cluster as recited in Claim 1 wherein said processing
2 means provides for, in response to a write access of a section of
3 said volatile memory in accordance with instructions of said first
4 instance of said application program, copying data in that section so
5 that one instance of said data originally in that section is modified
6 and the other copy of data originally in that section is not modified.

1 6. A computer cluster as recited in Claim 2 wherein said data
2 processing means maintains state data, said snapshot data
3 including at least some of said state data.

1 7. A method comprising:
2 executing a first instance of an application program on a first
3 computer of a computer cluster so as to generate a series of
4 memory states;
5 creating a snapshot of one of said states; and
6 transferring said snapshot to storage media accessible by a
7 second computer of said computer cluster.

1 8. A method as recited in Claim 7 further comprising executing a
2 second instance of said application program on a second computer
3 of said computer cluster using said snapshot as a starting state.

1 9. A method as recited in Claim 8 further comprising detecting a
2 failure that prevents execution of said first instance of said
3 application program, said detecting occurring after said transferring
4 and before said executing a second instance.

1 10. A method as recited in Claim 8 wherein said executing a second
2 instance follows said transferring without an intervening detection
3 of a failure.

1 11. A method as recited in Claim 7 wherein said transferring is
2 effected by a data transfer processor not used in executing said first
3 instance of said application.

1 12. A method as recited in Claim 7 wherein said executing is
2 effected by a data processor that stores processor state data
3 internally, said snapshot including said processor state data.